***Fiber Optic Trajectory Optimizing System (using Prim’s Algorithm)***

# ***Group Members:***

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# ***Description:***

A Fiber Optic Trajectory Optimizing System is an application that helps optimizing fiber optics trajectory planning for minimum cost of cabling. This problem is very important since fiber optic is expensive and if not installed optimally, it will cost enormously. Prim's algorithm can optimize by calculating the minimum spanning tree used for fiber optic cable installation. It streamlines and accelerates the transmission of data from source to destination.

# **Methodology:**

This optimization is done by preventing graphs from forming cycles. Prim’s algorithm ranks its weight from large to small and make minimum spanning tree. We will implement an efficient Fiber Optic Trajectory Optimizing System by using LINKED LIST, MIN-HEAP and GRAPH along with file handling for effective insertion.

# ***Deliverable:***

We will implement an efficient Fiber Optic Trajectory Optimizing System by using LINKED LIST, MIN-HEAP and GRAPH along with file handling for effective insertion. Minimum Spanning Tree ***(MST)*** of an adjacency list graph inputted by using ‘file handling’. Time complexity of this function is O(), where V is the number of vertices in graph. Calculates total weight of MST by adding the weight of all edges in MST one-by-one.